

NOTES ON AUSTRALIAN MOLLUSCA, WITH DESCRIPTIONS OF NEW GENERA AND NEW SPECIES

By BERNARD C. COTTON, CONCHOLOGIST, SOUTH AUSTRALIAN MUSEUM.

Fig. 1-9.

THE following notes, unless otherwise stated, deal with specimens dredged by Sir Joseph G. Vero and donated by him to the South Australian Museum.

FAMILY TRIPHORIDAE.

South Australian members of this Family were treated in a previous paper ⁽¹⁾ where three new genera, *Entriphora*, *Isotriphora*, and *Hypotriphora* were introduced. The following species are additions to the Western Australian list: *Isotriphora tasmanica* Tenison Woods, *I. disjuncta* Vero, *Notosinister innotabilis* Hedley, *N. latilirata* Vero, *N. armillata* Vero, *N. pfeifferi* Crosse and Fischer, *Entriphora epallara* Vero, all occurring as far West as King George Sound but apparently no further. *Isotriphora aurcovineta* Vero occurs as far west at Rottnest, and *Notosinister granifera* and *Cantor obliqua* May were obtained at 80 miles West of Eucla.

FAMILY VERMITIDAE.

Vermicularia waitei Hedley was dredged in 40 to 150 fathoms at a number of localities between Beachport, South Australia, and 80 miles West of Eucla, Western Australia; *Siliquaria anguina* Linn. in 100 fathoms at St. Francis Island, South Australia, and 90 miles West of Eucla, Western Australia; *Lilax nucleogranosum* Vero was obtained in 80 fathoms, 80 miles West of Eucla.

FAMILY IANTHINIDAE.

Specimens of *Ianthina violacea* were taken at numerous localities between Beachport, South Australia, and Hopetoun, Western Australia. The shells of *I. capreatata* Montrouzier occurred at many localities between Cape Jaffa, South Australia, and Albany, Western Australia, down to 300 fathoms, while many hundreds of living specimens were obtained at Esperance, Western Australia, in shallow water.

(1) Cotton and Godfrey, South Aust. Naturalist, vol. xii, No. 4, Sept., 1931, p. 51.

FAMILY MERRIIDAE.

Naricara ligata Recluz and *N. vincentiana* Angas were both obtained as far West as King George Sound, Western Australia.

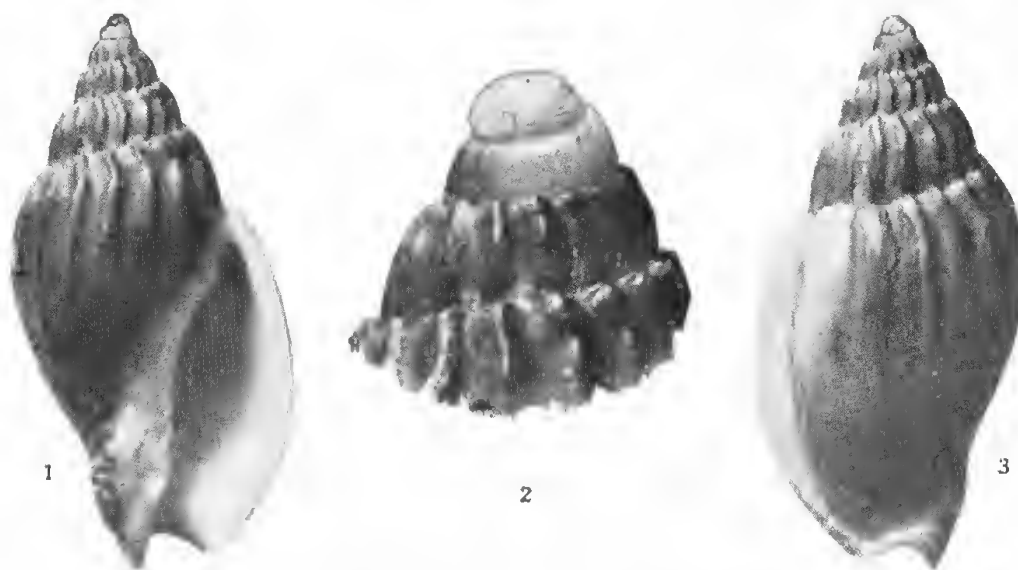


Fig. 1. *Lyria kimberi* sp. nov. ventral view. ($\times 2$).

Fig. 2. *Lyria kimberi* sp. nov. protoconch. ($\times 8$).

Fig. 3. *Lyria kimberi* sp. nov. dorsal view. ($\times 2$).

FAMILY VOLUTIDAE.

LYRIA KIMBERI sp. nov.

Fig. 1, 2, and 3.

Shell ovately-fusiform, mitraeform, solid; unicoloured chestnut-brown fading into cream near the outer lip; columella and aperture pure white; protoconch (fig. 2) large, globose, smooth, translucent white, of one-and-a-half turns after which commences the longitudinal plicae of the adult; spire acuminate, one-quarter of the total length of the shell; whorls validly longitudinally sinuously ribbed; sixteen ribs on the body-whorl and the same number on the penultimate, narrower than the interstices; base spirally grooved; aperture elongate-ovate, with a slightly recurved anterior canal; outer lip thick; columella triplicate at the base, then numerous, minutely plicate above, a small tooth near the posterior end.

Loc. Port Lincoln. Dredged in shallow water (probably 2-6 fathoms) (Mr. Ventura). Type (unique), height 30 mm., diam. 16 mm. Reg. No. D. 10185, S. Aust. Museum.

Ten species of true *Lyria* are recorded from various parts of the world, but only five are strongly longitudinally ribbed. One of these is the Australian

Lyria multicostata which is more like *L. kimberi* than any other species. Compared with *Lyria multicostata* Broderip, the present species is but half the size; it is unicoloured without any spiral bands or dotted lines; protoconch larger, pure white (not dark purple); the longitudinal ribs narrower, less numerous, and more sinuous.

Collected by Mr. Ventura, of Port Lincoln, and donated to the South Australian Museum by Mr. W. J. Kimber, after whom it is named.

The specimen is perfect, in a fresh condition, and Mr. Ventura informs Mr. Kimber that it is common about Port Lincoln. It is an extraordinary circumstance that no member of the South Australian Malacological Society has ever collected or seen the species before.

FAMILY CERITHIIDAE.

The species *granarium* Kiener and *icarus* Bayle (= *tenuis* Sowerby) may be placed in the genus *Cacozetiana* Strand ⁽²⁾ (= *Cacozetia* Iredale procc.). The reference to Strand is omitted from the Zoological Record. *Bittium lawleyanum* Crosse is generically distinct from these species, and is here made the type of a new genus *Paracerithium* described below.

In the genus *Zeacumantus* Finlay 1926 may be located *diemenensis* Quoy and Gaimard, *cerithium* Quoy and Gaimard, and *estuarinum* Tate. "*Cerithiopsis*" *geniculosus* is the genotype of *Atispecula* Powell 1930, and "*Donorania*" *fenestrata* Tate and May the genotype of *Gatliffena* Iredale 1929. The type of *Scitarer* Iredale 1924 is *turritelliformis* Angas, and *attenuata* Hedley is a synonym. *Cerithium monachus* Crosse and Fischer differs somewhat from the type of the tropical genus *Plesiostrochus*, and is here placed in a new genus *Hypostrochus*. Other South Australian species should read: *Ataracerithium seratinum* A. Adams, *Joculator cressiens* Hedley, *Zuetyls dannerigi* Hedley, *Notoscala crocea* Angas, *Notoscala albosutura* Tenison-Woods.

PARACERITHIUM gen. nov.

Shell imperforate, elongate, turriculate, suture slightly impressed; whorls slightly convex and spirally grooved, sometimes developing weak axial undulations; protoconch brown, polished, horny; aperture oval; outer lip slightly notched. Type, *Bittium lawleyanum* Crosse.

HYPOTROCHUS gen. nov.

Shell thin, subtranslucent, whorls bicarinate, ventricose, longitudinally plicate, beset with varices and spirally striate; aperture produced anteriorly into a short, narrow canal; protoconch very small, horny, smooth, of two-and-a-half

(2) Strand, Archiv. f. Naturgesch. Jahrb. 92 Abt. A Heft 8, 1928.

whorls. Type, *Cerithium monachus* Crosse and Fischer. *Hypotrochus* is the Southern representative of the tropical genus *Plesiotrochus* Fischer 1878. The type of *Plesiotrochus* is *souverbianus* Fischer, and specimens from Lifou, Loyalty Island, show this to be shorter and comparatively wider, with almost straight-sided, not ventricose whorls. *Hypotrochus* is common in the Flindersian Region, but rare in New South Wales, which may be regarded as the northern limit. *H. monachus* is very variable in the length of the spire and validity of the varices. A distinct species of *Hypotrochus* is here described as *H. penetricincta* sp. nov.



Fig. 4. *Octopus flindersi* sp. nov. beaks. (Nat. size).

Fig. 5. *Hypotrochus penetricincta* sp. nov. ($\times 4$).

HYPOTROCHUS PENETRICINCTA sp. nov.

Fig. 5.

Thin, conical, subtranslucent; whorls sharply carinate, little ventricose, longitudinally plicate, ten plications on the penultimate whorl; spirally striate; body whorl bicarinate; base spirally ribbed, with a weak keel near the columella; colour yellowish, spotted with chestnut on the keels of the whorls.

Loc. Edithburg, South Australia; 9 fathoms, 11 mm. \times 5 mm. (type, in S. Aust. Mus., Reg. No. D 10165). Gulf St. Vincent, South Australia, to King George Sound, Western Australia, down to 55 fathoms.

Diagnosis. Differs from *H. monachus* Crosse and Fischer in being more slender, having sharper keels and the additional keel on the base. It is rather less variable than *H. monachus*. *H. penetricincta* resembles *P. pagodiformis* in shape, but has the additional basal keel.

HYPOTROCHUS MONACHUS Crosse and Fischer.

Cerithium monachus Crosse and Fischer, Journ. de Conch., 1864, p. 347.

Loc. South Australia; Beachport to St. Francis Island, down to 100 fathoms. Western Australia; King George Sound and Abrolhos Island.

NEODIASTOMA gen. nov.

Shell turriculate, elongate; protoconch of two smooth homostrophe whorls; earlier shell whorls varicee, the varices becoming obsolete later; weakly axially plicate and finely spirally ribbed, the primary ribs being about twelve on the body whorl and six on the spire whorls with other less conspicuous interstitial riblets; suture impressed; aperture oblique, inner lip glazed, more thickly glazed anteriorly, the two degrees of glazing separated by a sharp columella plait; outer lip slightly notched anteriorly near the columella; colour white, flecked on the spiral ribs with rectangular chestnut spots.

Type *Mesalia melanioides* Reeve. Esperance Bay, Western Australia.

Neodiastoma differs from *Diastoma* in the anterior notch of the outer lip, and from *Mesalia* in being varicee.

This genus had probably better be placed in the Family *Cerithiidae* for the present. The possession of a homostrophe protoconch disallows its location in the *Pyramidellidae*.

NEODIASTOMA MELANIOIDES Reeve.

Mesalia melanioides Reeve, *Conch. Icon.*, v, pl. 1, fig. 3, 1849.

Mesalia exilis Sowerby, *An. Mag. Nat. Hist.*, xii, p. 236, pl. iii, fig. 9, 1913.

Reeve described this species from unknown locality. Sixty-four years later Sowerby described *Mesalia exilis* from Western Australia. Smith compared the type specimen of each species and testified to their specific identity, and remarked, "This species (*M. melanioides* Reeve) of which only the shell is known, has an altogether different aspect from the type of *Mesalia* (*Mesalia brevisalis* Lamarek)." Sowerby writes: "The actual position of this remarkable shell is uncertain, but I provisionally place it in *Mesalia* on account of the characteristic basal sinus." Tate advocates the location of *melanioides* in the fossil genus *Diastoma* which occurs in the Eocene and Oligocene of the Paris basin. He records the new species *Diastoma provisum* as occurring in the Miocene at Hallett's Cove, and Older Pliocene at Dry Creek bore, South Australia. The fossil *provisum* Tate is much more like the living *Neodiastoma melanioides* than it is like the type of *Diastoma*. The type of *M. exilis* came from Esperance Bay, and Sowerby confirms this in a letter to Sir Joseph Verco. An examination of some fine specimens of *melanioides* from the type locality shows their closer relation to the fossil genus *Diastoma* than to *Mesalia*.

Loc. South Australia: Thistle Island, 15 fathoms; Spencer Gulf, 12 and 10 fathoms; Sir Joseph Banks Island, St. Francis Island, Petrel Bay, 6 fathoms. Western Australia: Esperance Bay.

FAMILY ATLANTIDAE.

ATLANTA ROSEA Eydoux and Souleyet.

Four shells of this species were dredged by Vercó in January, 1905. The largest specimen has the "ligne rose à la base de la carène" as mentioned in the type description. This is the first record of the family *Atlantidae* occurring on the southern coast of Australia. Hedley previously recorded the species from New South Wales: Cape Three Points 41-50 fathoms, and Port Kembla 63-75 fathoms.

Loc. South Australia: 35 miles south-west of the Neptune Islands, 104 fathoms, in sandy ooze; east longitude 135°40', and south latitude 35°25'. Four specimens.

FAMILY CARINARIIDAE.

PTEROSOMA PLANUM Lesson.

One juvenile specimen dredged by Vercó adds another genus and species to the South Australian list.

Loc. South Australia: Beachport, 40 fathoms.

FAMILY CAVOLINIIDAE.

Only two species of *Pteropoda* have been recorded from Western Australia, *Clio pyramidatus* Linne and *Cavolina longirostris* Lesueur. None have been recorded from the southern coast of that State. Vercó dredged the following species:

CAVOLINIA TRISPINOSA Lesueur.

Loc. Western Australia: 80 miles west of Eucla, 80 fathoms. Two perfect specimens, the larger measuring 7 mm. x 6 mm.

CAVOLINIA TRIDENTATA Forskal.

Loc. Western Australia: 80 miles west of Eucla, 80 fathoms, and 120 miles west of Eucla, 300 fathoms. Four specimens, the largest reconstructed graphically, measures 17 mm. x 13 mm.

CLIO SUBULA Rang.

Loc. Western Australia: 80 miles west of Eucla, 80 fathoms. Many fragments.

CLIO PYRAMIDATUS Lesueur.

Loc. Western Australia: 80 miles west of Eucla, 80 fathoms. Two fragments.

CLIO BALANTIIUM Rang.

Loc. Western Australia: 120 miles west of Eucla, 300 fathoms. Three fragments.

SPIRATELLA INFLATA d'Orbigny.

Loc. Western Australia: 80 miles west of Eucla, 80 fathoms. Six specimens.

FAMILY OCTOPODIDAE.

It is almost impossible to obtain accurate measurements from fresh specimens of *Octopus*, as they are so plastic, the body portion particularly, assuming different shapes. As there is no rigid portion in the whole animal except the beaks, it is obvious that measurements for diagnostic purposes are difficult to obtain. Probably more accurate comparative dimensions can be obtained after the animal has been immersed for a few days in the undermentioned solution, which as a preservative seems as permanent as spirits or formalin. The *Octopus* should be suspended in the solution by the tip of the arms so as to avoid uneven pressure on the body, which would result in distortion. Experiments with fresh meat and various kinds of *Mollusca* have proved the following formula very good:

Glycerine	-	-	-	-	-	-	-	-	1 part.
Methylated Spirits	-	-	-	-	-	-	-	-	2 parts.
Water	-	-	-	-	-	-	-	-	5 parts.
Formalin	-	-	-	-	-	-	-	-	·04 part.

This solution will preserve Nudibranchs, Cephalopods, and other soft bodied animals without shrinking them greatly or making them unduly hard.

OCTOPUS FLINDERSI sp. nov.

Fig. 4 and 6.

Body oval, somewhat pear-shaped, narrowest at the junction with the head, which is narrower than the body; arms in the order 3, 1, 2, 4, all more or less damaged, and average 75% of the total length of the animal, which is 1000 mm. long from the aboral end of the body to the tip of the longest arm; largest suckers average 26 mm. diameter, or 15% of the mantle length; web shallow, of subequal depth; funnel organ W shaped; skin smooth, though the animal can wrinkle it somewhat to produce a weak granulation sometimes seen in preserved specimens; skin otherwise devoid of sculpture; colour yellowish, changing to a reddish-brown hue on the dorsum and outer surface of the arms, where it is also irregularly maculated with brown spots; colour changeable in life, sometimes assuming a bluish-grey tinge, which is the usual colour of preserved specimens; beaks, illustrated natural size at figure 4.

Loc. South Australia: Largs Bay (type, in S. Aust. Mus., Reg. No. D 10169), Robe, Port Noarlunga, Marion Bay (P. Nichols), and Encounter Bay (Prof. J. B. Cleland). Common in the south-east of South Australia during the summer.



Fig. 6. *Octopus flindersi* sp. nov. ($\times 0.122$).

Unfortunately all the specimens personally examined were females, so that it is not possible to give a description of the hectocotylized arm in this paper.

The largest species of *Octopus* so far recorded from South Australia. It resembles *Octopus vulgaris* Lamarek but differs in having stouter, shorter arms, comparatively larger suckers, and smooth skin.

OCTOPUS PALLIDA Hoyle.

Octopus boscii var. *pallida* Hoyle, Ann. Mag. Nat. Hist. (5), xv, p. 223.

Polypus variolatus Blainville, Berry, Biol. Res. Endeavour, iv, pt. 5, p. 278, 1918, pls. lxxix-lxxxii.

Polypus variolatus Blainville, Cotton, Rec., S. Aust. Mus., iv, No. 1, p. 128, 1928.

Australian distribution: New South Wales, Victoria, Tasmania, and Western Australia in the Great Australian Bight.

Mr. H. M. Hale found a juvenile specimen of this species on the beach at the outer Harbour, and an adult was dredged by me in 5 fathoms off Semaphore. Both agree with Hoyle's description and Berry's illustration.

HAPLOCHILAENA MACULOSA Hoyle.

Octopus pictus Brock, Anatomie und Systematik der Cephalopoden, p. 603, pl. 37, fig. 3, 1882 (preocc. Blainville, 1828).

Octopus maculosus Hoyle, Proc. Roy. Phys. Soc. Edin., vii, p. 319, pl. vi, 1883.

Polypus pictus Brock, Cotton, Rec. S. Austr. Mus., iv, No. 1, p. 128, 1928.

Lac. The Australian distribution of this species is New South Wales, South Australia, and Tasmania.

Specimens obtained from Kangaroo Island and Gulf St. Vincent, South Australia, give the following data: The arms have the order of length 4, 3, 2, 1. The umbrella extends slightly higher between the lateral arms. One specimen has the umbrella comparatively higher on the left than the right side. Hoyle writes: "The example in the British Museum from Kangaroo Island has a curious, thin, pointed process about 6 mm. long at the aboral end of the body, which led to its receiving a special MS. name, but in all other respects it agrees so closely with *Octopus pictus* Brock that I am inclined to regard it as an individual abnormality." Specimens preserved in formalin or spirit sometimes have a short, thin, pointed process or "tail" about 3 mm. in length, but this has not been noticed in fresh specimens, though some are obtusely pointed at the aboral end of the body. The species is very variable, and it is highly probable that *H. lunulata* Quoy and Gaimard is the same species, when *H. maculosa* Hoyle, described fifty-one years later, would become a synonym.

FAMILY SEPIIDAE.

Iredale (³), 1926, recorded six genera, five species and four subspecies of cuttlefish bones from North-West Islet. Since this Mr. W. J. Kimber collected there, and was fortunate in securing one perfect specimen of a cuttle bone quite

(³) Iredale Aust. Zoologist, vol. iv, p. 237, 1926.

distinct from any species so far recorded. It is here described as a new genus and species.

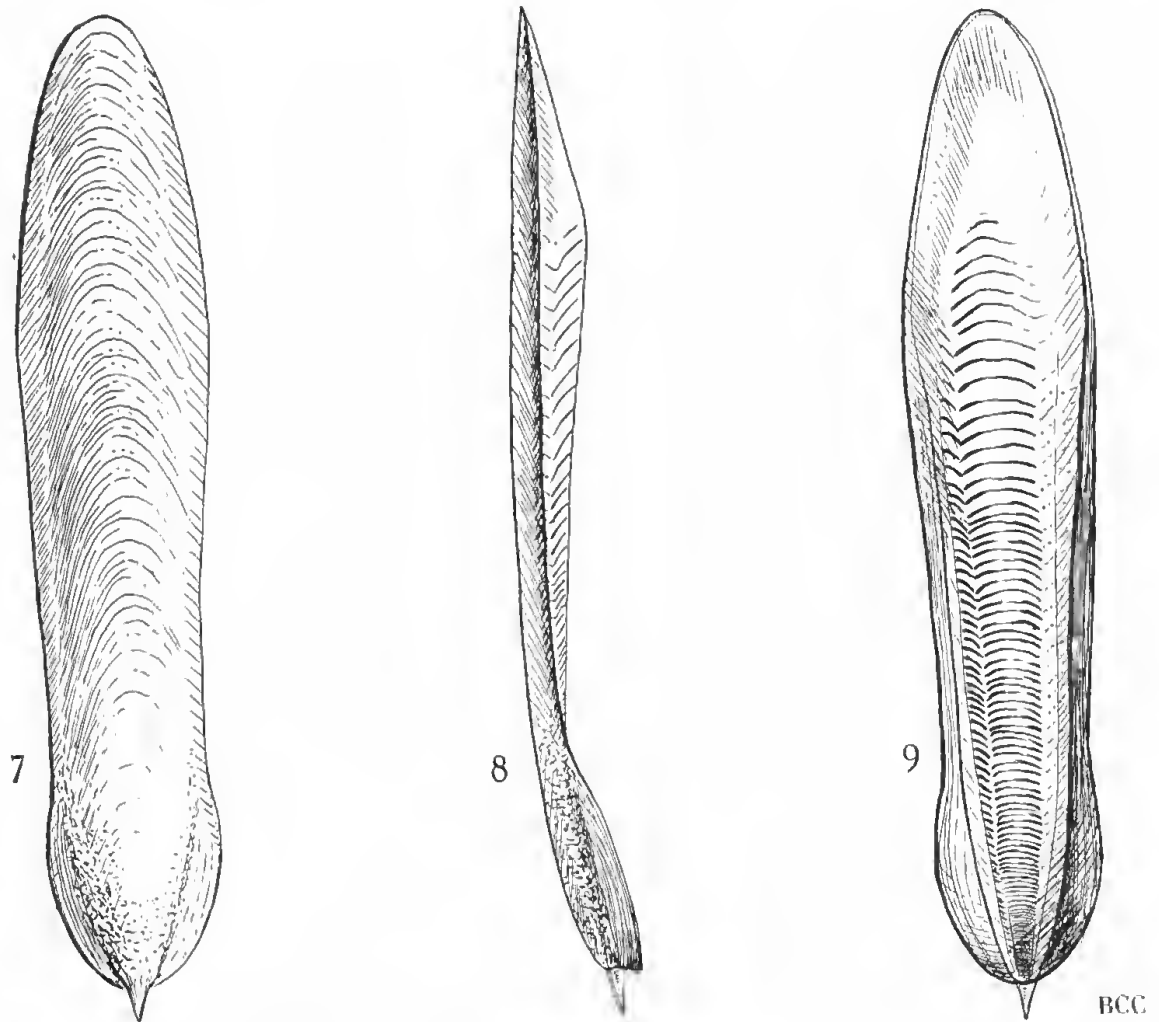


Fig. 7, 8 and 9. *Tenuisepia mira* sp. nov. ($\times 2$).

TENUISEPIA gen. nov.

Sepion small, elongate, narrow, five times as long as broad; inner cone much reduced; no ventral sulcus; dorsum without ribs; spine medium, stout, rounded. Type, *Tenuisepia mira* sp. nov.

TENUISEPIA MIRA sp. nov.

Fig. 7, 8, and 9.

Sepion small, elongate, narrow, sharply rounded anteriorly, a little more than five times as long as broad; inner cone much reduced; dorsal surface cream coloured, smooth except for a finely pustulose area near the posterior end; no

ribs or furrows; chitinous margin narrow; outer cone thin, little calcareous, white, passing in front of the spine as a thin, projecting ledge; ventral surface swollen anteriorly, striated area long, no ventral sulcus, striae arched; spine medium, rounded, stout.

Loc. Queensland: North-West Islet, Capricorn Group (W. J. Kimber).

Type, length 55 mm., breadth 10·6 mm., thickness 4 mm., spine length 1·7 mm., thickness at base 1 mm. Reg. No. D. 10507, S. Aust. Mus.

The only genus which shows any affinity with *Tenuisepia* is *Decorisepia*. The type of *Decorisepia*, *D. rex* Iredale, compared with *T. mira*, is more than twice as large, much broader, and has the dorsum strongly three-ribbed.